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(54) **Radio frequency receiver for a NMR instrument.**

(57) A receiver processes an NMR signal to produce a baseband image information signal from which two quadrature component signals are derived. An intermediate frequency section mixes (303, 306) the received NMR signal with two reference signals (201, 204) to shift the image information into a frequency band having a bandwidth BW and centered at a frequency that is 1:5 times the bandwidth BW. The resultant signal is filtered (308) to remove extraneous signals outside the image information band. An analog to digital converter (209) samples the filtered signal at a rate that is twice the bandwidth Bw and digitizes the samples into a digital signal. A quadrature detector (210) derives I and Q output signals from the digital signal by alternately selecting (311, 321) digital samples and negating every other sample selected for each of the I and Q output signals. The quadrature detector also digitally filters (312, 322) the I and Q signals which are then used to construct an NMR image.
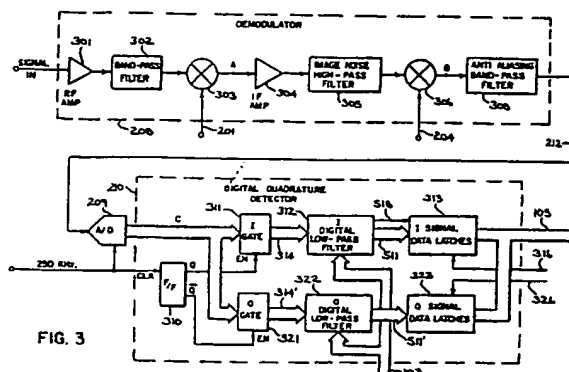
EP 0 411 840 A3

FIG. 3

EUROPEAN SEARCH REPORT

Application Number

EP 90 30 8260

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 307 989 (PHILIPS PATENTVERWALTUNG GmbH) * Column 2, line 18 - column 3, line 42; column 4, line 24 - column 6, line 56; figures 2,3 *	1,6,7,13	G 01 R 33/36 G 01 R 33/54
A	EP-A-0 292 064 (N.V. PHILIPS GLOEILAMPEN-FABRIEKEN) * Column 2, line 41 - column 3, line 31; column 8, line 18 - column 9, line 26; figure 4 *	1,7,11-13	
P,A	EP-A-0 336 479 (PHILIPS PATENTVERWALTUNG GmbH) * Column 1, line 36 - column 3, line 16; column 4, line 4 - column 6, line 16; figures 2,3 *	1,2,5,7, 13,14,16	
A	JOURNAL OF PHYSICS E: SCIENTIFIC INSTRUMENTS, vol. 14, 1981, pages 1253-1256, Dorking, GB; F. MOMO et al.: "Microcomputer based phase sensitive detector" * Pages 1253-1255, chapters 1,2,3; figures 1-5 *	1-3,8, 13-15	
A	E. FUKUSHIMA et al.: "Experimental pulse NMR", 1981, pages 60-76, Addison-Wesley Publishing Co., Inc., Reading, US; chapter: "Quadrature detection" * Pages 60-64 *	1,7,13	TECHNICAL FIELDS SEARCHED (Int. Cl.5) G 01 R

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	04 April 91	VOLMER J.W.